Appendix D: Cost and Benefits of Green Building

Following are examples of studies related to sustainable design, LEED or studies on specific buildings. For more industry research, visit www.usgbc.org/leed, select Resources, then Research.

Cost Effectiveness of LEED-NC in Colorado
Governor's Office of Energy Management & Conservation, *Rebuild Colorado*
(Project underway in 2006)
Rebuild Colorado is interviewing Colorado LEED-NC certified building owners and compiling information about the cost and benefits of using LEED-NC. A white paper summarizing the research is due out in late 2006.
Website: www.colorado.gov/rebuildco

GSA LEED Cost Study, Steven Winters, October 2004
The U.S. General Services Administration (GSA) commissioned a study to estimate the cost of achieving LEED certification for both new construction and major renovation projects for federal buildings. The report provides a detailed review of hard and soft costs of achieving three levels of LEED certification: Certified, Silver and Gold:
Website:
www.wbdg.org/newsevents/news_040105.php

The Costs and Financial Benefits of Green Buildings: A Report to California's Sustainable Building Task Force, Greg Kats (Capital E) et al., October 2003
Commissioned by the California's Sustainable Buildings Task Force, this study consists of an economic analysis that evaluates the cost and benefits of sustainable building. Findings show that initial cost premium of building green is quickly recouped through reduce operation and maintenance costs. General findings were that minimal increases in upfront costs of 0 to 2 percent to support green design will result in life cycle savings of 20 percent of total construction costs -- more than ten times the initial investment.
Website:
www.usgbc.org/Docs/Resources/CA_report_GBbenefits.pdf

Green City Buildings: Applying the LEED™ Rating System, Xenergy, June 2000
This study considered the financial impacts of applying LEED to three conventionally built facilities in Portland, Oregon. It found that life-cycle savings average 15 percent of initial costs for LEED buildings, and that the premium associated with using LEED building practices ranged from just 0 to 2.2 percent over the cost of conventional buildings.
Website:
www.sustainableportland.org/CityLEED.pdf

Costing Green: A Comprehensive Cost Database and Budgeting Methodology, Davis Langdon, July 2004
Authored by Lisa Fay Matthiessen and Peter Morris, this study compares construction costs of green buildings with comparable conventional buildings. General findings were that many building projects can incorporate sustainable design principles without an increased budget, or with very small additional funding.
Website:
www.usgbc.org/Docs/Resources/Cost_of_Green_Full.pdf#search='Costing%20Green:%20Davis%20Langdon

Health and Productivity Gains from Better Indoor Environments and Their Implications for the U.S. Department of Energy, William J. Fisk, 2000
This publication summarizes numerous studies that show increased productivity due to improved indoor environments. Indoor environments significantly influence the occurrence of communicable respiratory illness, allergy and asthma symptoms, sick building symptoms, and worker productivity. Improving indoor environmental quality leads to lower health care costs, reduces sick leave, and minimizes periods of illness-impaired work performance. Obtaining a high level of indoor environmental quality could result in $20-50 billion in productivity gains annually in the U.S. (1996 dollars).
Website: eetd.lbl.gov/IED/viaq/pubs/LBNL-47458.pdf

Heschong Mahone Group: Daylighting Productivity Studies
This firm has performed a variety of productivity studies measuring the impact of daylighting on retail sales and student performance. Test results showed students in rooms with daylighting learned quicker than those in non-daylit rooms. Poudre School District was one of the districts included in this study.
Website: www.h-m-g.com/projects/daylighting/projects-PIER.htm

Daylight Dividends
A collaboration of the U.S. Department of Energy, Lighting Research Center and others is working to document productivity improvements and other benefits of daylighting. Find a variety of case studies and research at this website, hosted by Rensselaer Polytechnic Institute
www.lrc.rpi.edu/programs/daylighting/index.asp